

## Siemens We Can Change the World Challenge

# **If You Don't Recycle – You're Nuts!**

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### **Suburban Challenge Project**

#### **Step 1: Choose It!**

Did you know that we throw away 2.5 million plastic bottles every hour? According to our local recycling authority, every ton of garbage recycled creates nine jobs, but only one job is created if the same ton of garbage is thrown in the landfill. Not only do plastic bottles take hundreds of years to rot in a landfill, but also we use natural resources faster than the planet can renew them. Recycling can help the entire earth. Our team noticed that our local cities and schools throw away bottles and cans, even though they have recycling pick up. Our goal is to educate children and adults. We want to see if we can scientifically show a difference in attitude and behavior after education. Our team will take the information we discover and use it to influence our elected representatives in our city hall, county, state, and Washington, D.C. Recycling makes sense!

#### **Step 2: Research It!**

Waste is a natural part of our society. Waste has to go somewhere. Ultimately, it goes to our local landfills. To add to that, recyclables also go to our local landfills. We are wasting too fast and our waste is continuing to grow. We use natural resources faster than our planet can renew them. We can't continue to waste at our current rate. Our local recycling authority explained that for every ton of garbage recycled it creates nine jobs, but if that same ton is in a landfill it creates one job. Recovering more beverage bottles makes environmental and economic sense. Between 2002 and 2005 bottled water sales doubled. Non-alcoholic, non-carbonated water is likely to have more sales than soda by 2010. Many bottle bills for deposits on non-carbonated beverage bottles have been brought forward, but only Maine, Hawaii, and California have passed them. (The Container Recycling Institute, "Water, Water Everywhere" 2007) Americans use 2.5 million bottles every hour and most of them are thrown away according to experts at the Clean Air Council. Many adults didn't learn about the benefits of recycling as children, so they may not recycle as much as they could. Kids are learning about recycling today. Hopefully, they will try to recycle more to save the world.

### **Step 3: Plan It!**

We went to a recycling facility. We were very surprised about how much we waste. After we went to the recycling facility, we decided to see who would recycle more: kids or adults. We knew what we had to do. We needed: two bins; posters showing the negative and positive facts about recycling for kids and adults; two announcements, one for the school and one for the adults at city hall and the police department; a fun character and web-based activity for kids to get more involved and interested; and a lot of research.

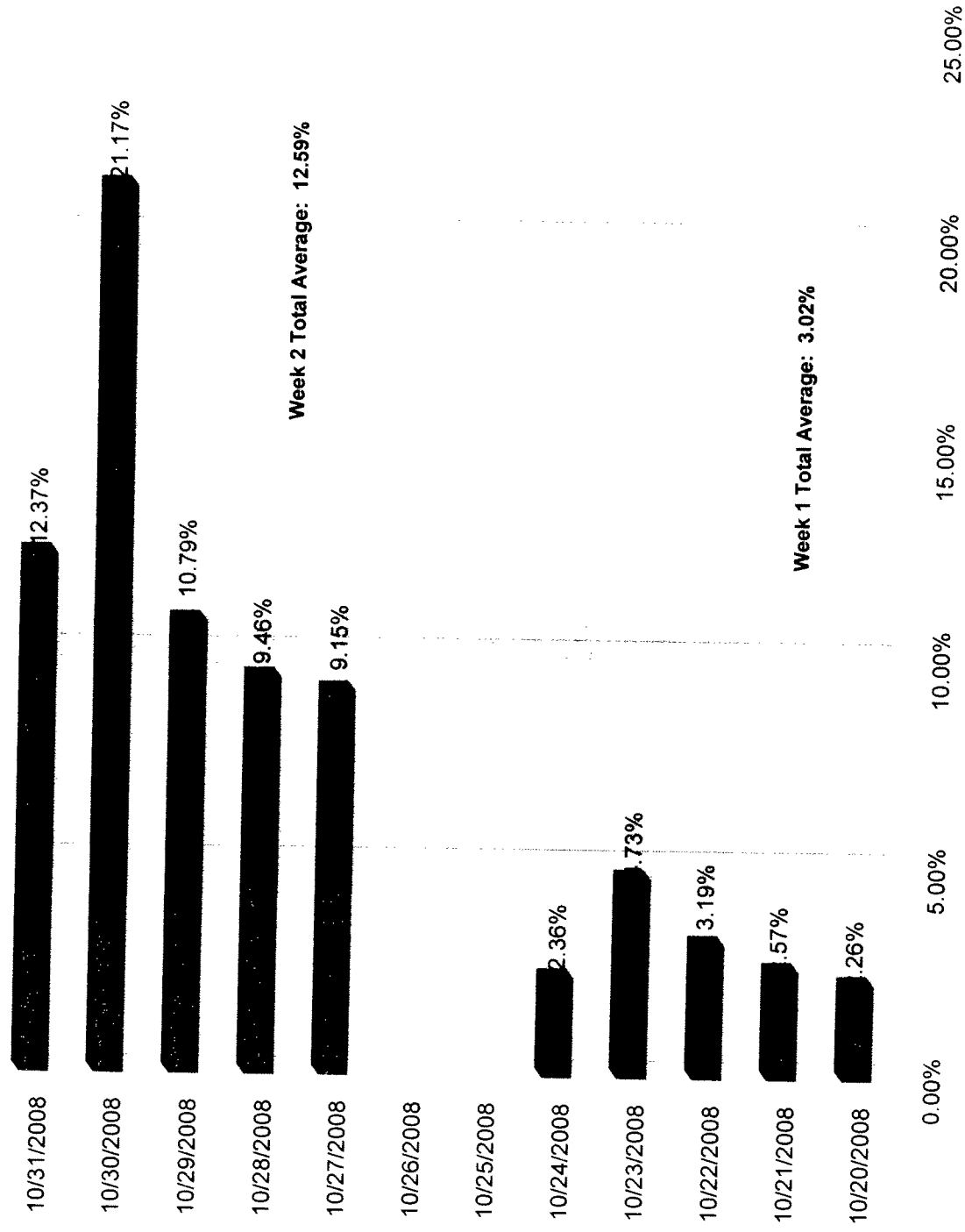
We will put a bin in a local middle school, our city hall, and the police department. We will check the bins daily in the weeks following; one week without telling anyone and the next week we will start supplying information about recycling.

We believe that we can scientifically show age and education has an effect on the attitude and behavior of people recycling in public places. Our hypothesis is that kids will recycle more than adults before and after education.

### **Step 4: Do It!**

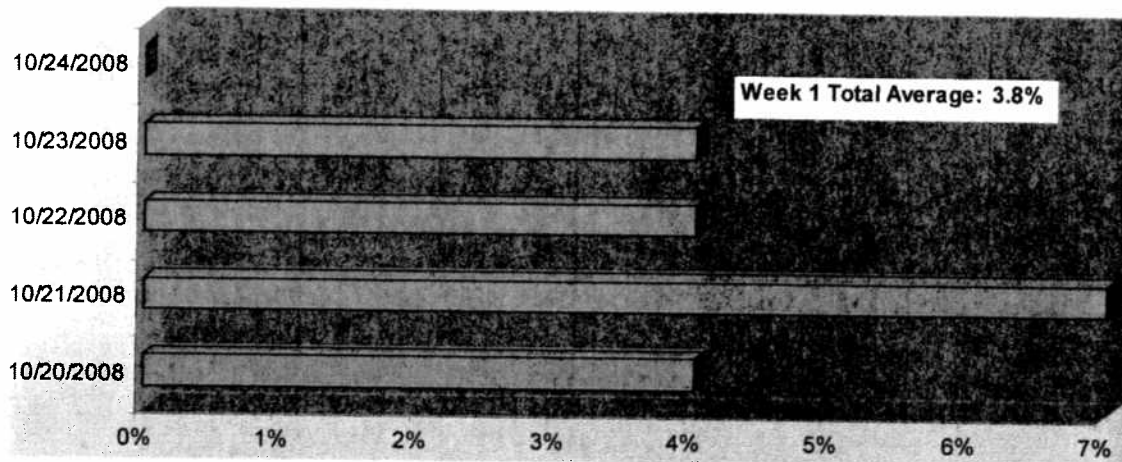
After visiting a recycling facility, we were so inspired that we wanted to help. We bought two bins (one for kids and one for adults). Then our team made two sets of posters, customized for kids and adults, with negative and positive facts about recycling. We wrote announcements to be read at the schools, city council, and the police department. We received permission from the principal of the school, the treasurer of the city, and the police chief, to place the bins. We left the kids' bin out for two weeks, collected the cans and bottles, and counted how many we received. We left the bin at the city hall and the police department for three weeks because of the meeting schedule. The first week, we just left the bin there. The second week, we put posters above the bin with negative and positive facts about recycling. The third week, we asked a council member and the police chief to read our announcement at a meeting. Surprisingly, the adults in the police department recycled more than kids, which proves our hypothesis was not correct. There were more kids at the school than adults at the city hall and the police department, which made the numbers of bottles and cans collected higher, but the percentages lower.

# Middle School Data

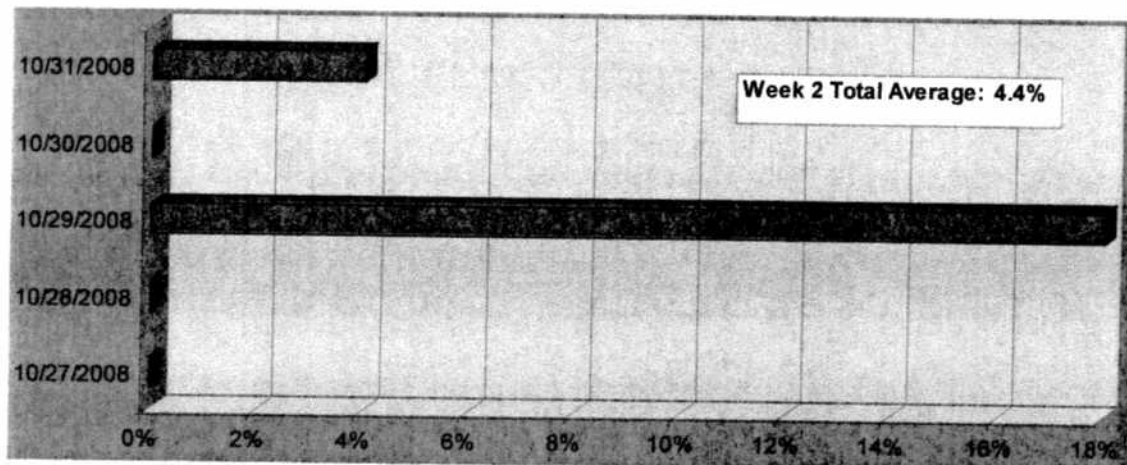


# City Hall Data

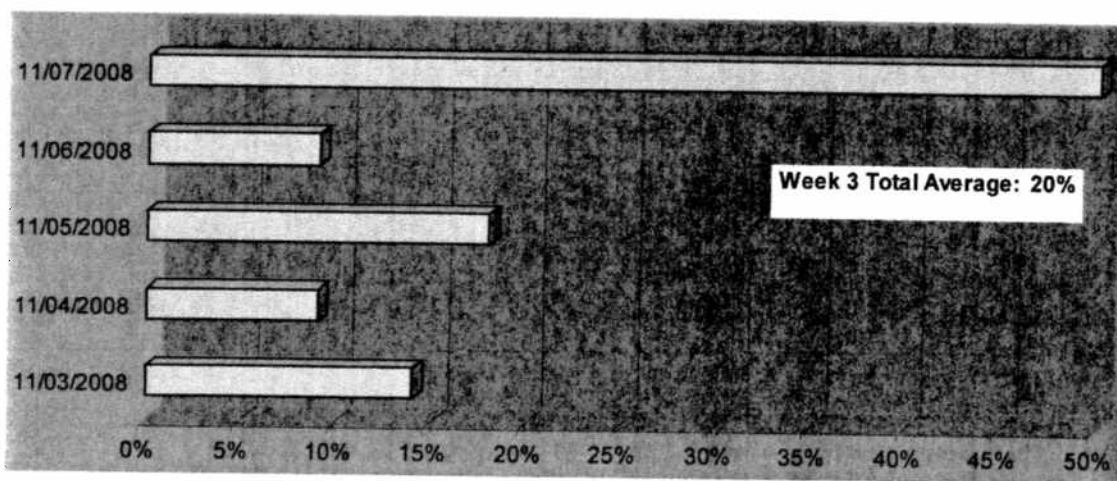
## Week 1: Place Recycle Bin at City Hall



## Week 2: Recycle Bin & Posters at City Hall



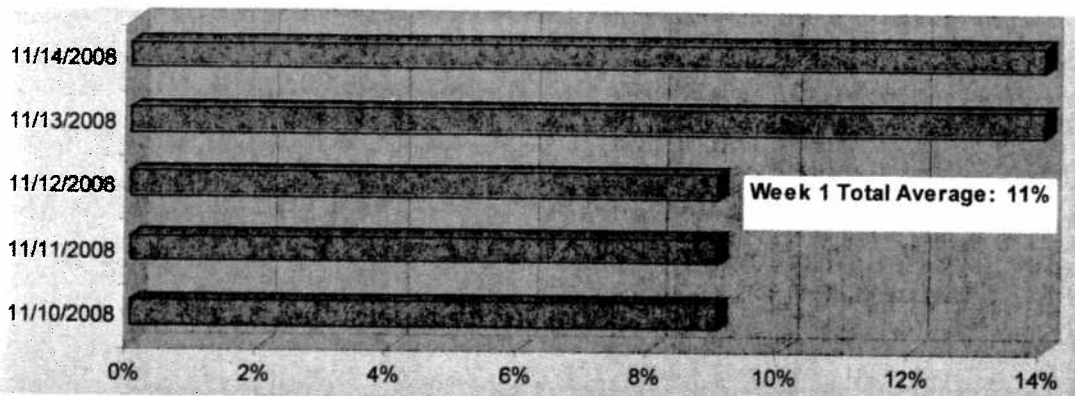
## Week 3: Recycle Bin, Posters & Announcement at City Hall



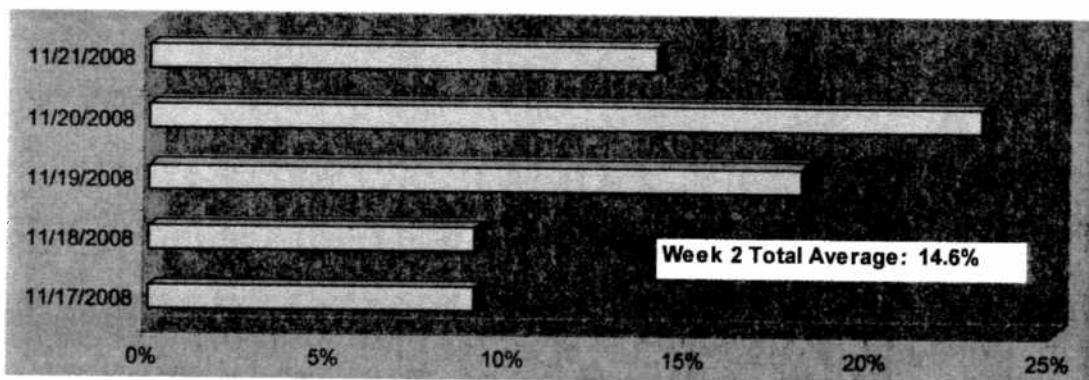
City Hall Total Average for All Three Weeks: 9.4%

# Police Department Data

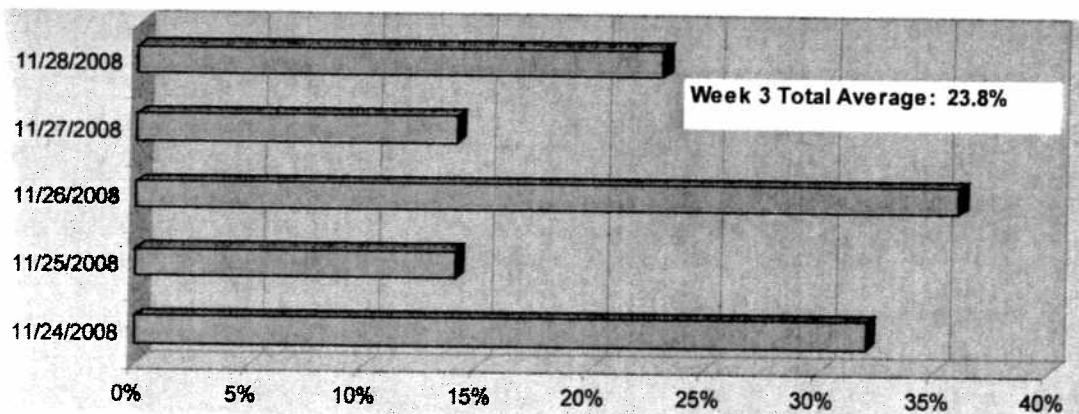
**Week 1: Place Recycle Bin at the Police Department**



**Week 2: Recycle Bin & Posters at the Police Department**



**Week 3: Recycle Bin, Posters & Announcement at the Police Department**



**Police Department Total Average for All Three Weeks: 16.47%**

### **Step 5: Analyze It!**

Our team's hypothesis was that the students will recycle more in public places than adults, before and after education. It was not correct. There are many factors that may contribute to our results. We found that having a bin in convenient places would help people recycle more. For example, in the school lunch room, there is one trash bin and one recycle bin next to each other, so the kids won't have to go for a walk to get to the recycle bin. It is right there by the trash bin. The police also have an open office with a conveniently located recycling bin. However, in the city offices, adults have trash bins by their desks, but not recycle bins. Adults won't stop what they are doing to recycle one bottle. If the recycle bin is across the room, they will not get up. It is true!

### **Step 6: Share It!**

Our team shared our experiment results with two scout troops; a hotel; a web-based toy manufacturer; and Walled Lake City Council. We also presented our project to a meeting of the Oakland County Board of Commissioners Planning and Building Committee, where our recommendations were officially received and filed. In addition, our team plans to share our data with elected representatives in our State and Washington D.C.

We believe future recycling education programs should be customized to target kids and adults differently. To educate kids about the benefits of recycling, our team created Mr. P. Nutterson, the Go Green Recycling Squirrel. The squirrel is a prototype to add onto an existing popular interactive web-based toy. We will try to build the recycling education program into the web toy design. This type of education the kids seem to like. We shared this program with two scout troops. We talked to them about our project, the different things that can be recycled, how much we waste, and the things that could be but aren't recycled. We showed them that recycling is worth trying! The middle school was so into the program that they continued to embrace it and kept the bin. Unfortunately, many recycling programs are missing the recycling facts that adults care mostly about: jobs and money. We plan to bring our data to our elected representatives and ask them to embrace changes to our current recycling laws and increase recycling opportunities by adding more bins in public places.

We won't care if the program doesn't come out the way we wanted it to. We just care that we tried to help. Whatever the outcome, we will be happy with the results. Even the smallest change can make a difference. When you throw stuff into a landfill it will just sit there and rot for 700 or more years. The resources that you throw away are gone forever! The main thing to remember is: trash is cash.